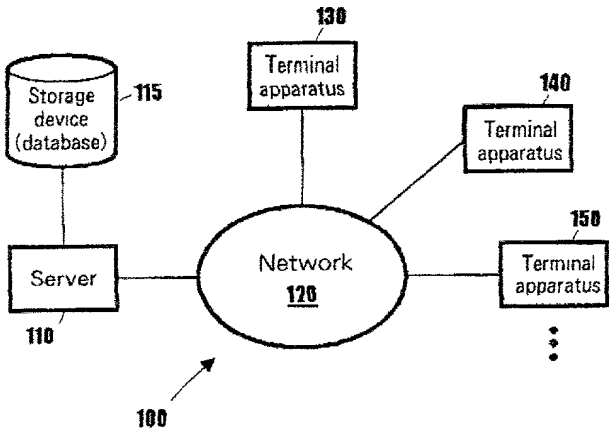
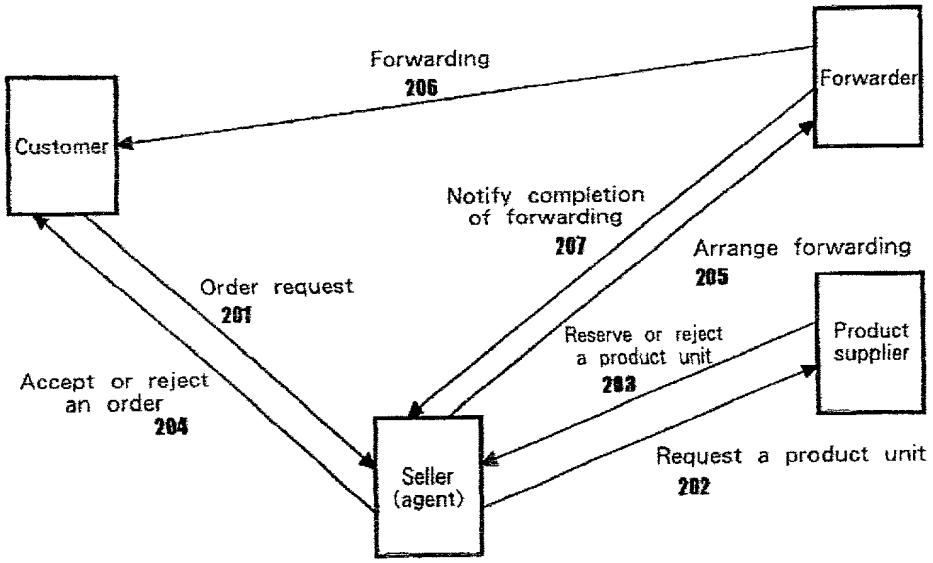
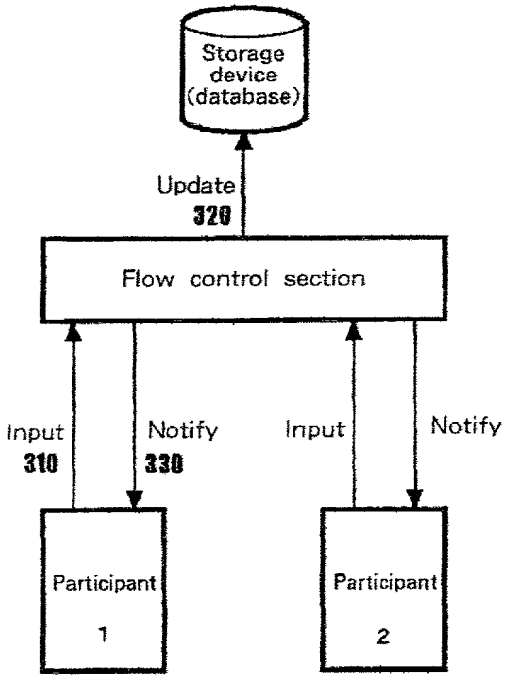


Fig. 1



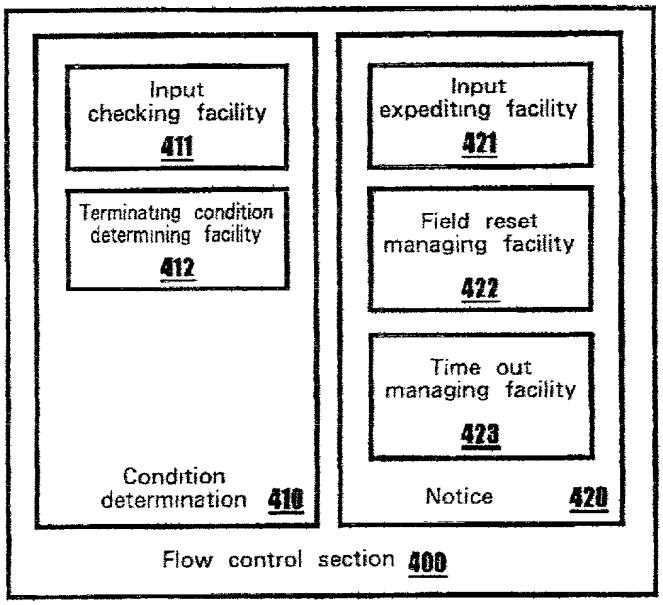
Typical inter – company workflow

Fig. 2



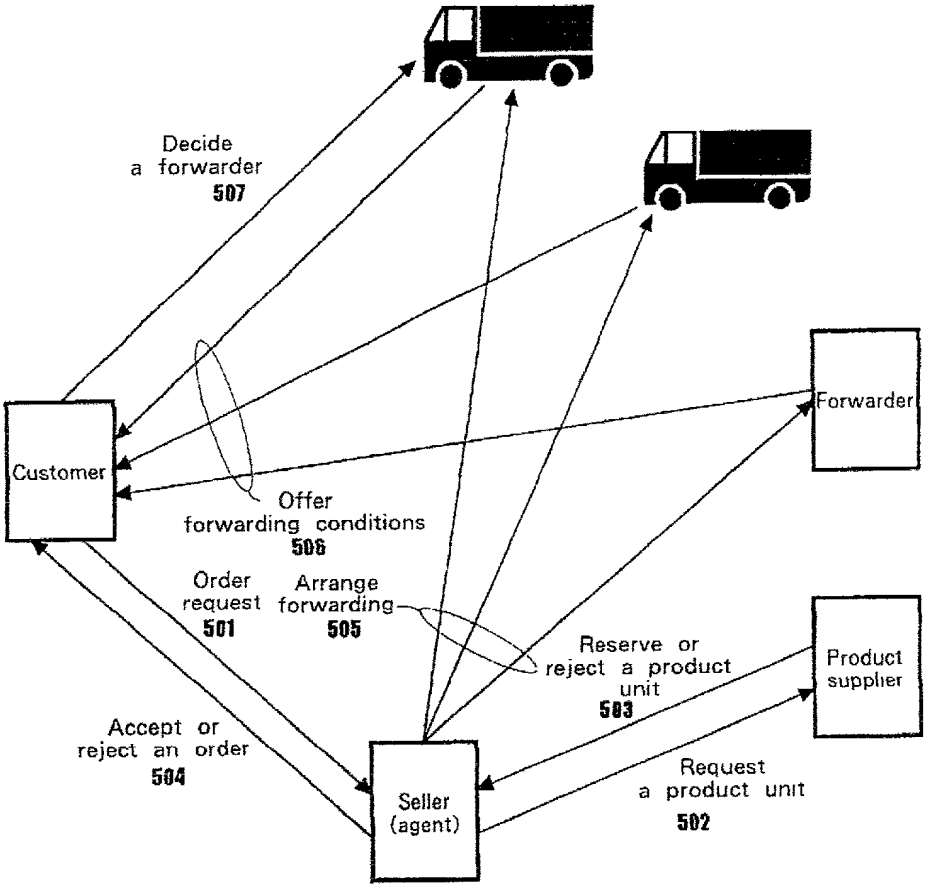
Overview of a workflow controlling system

Fig. 3



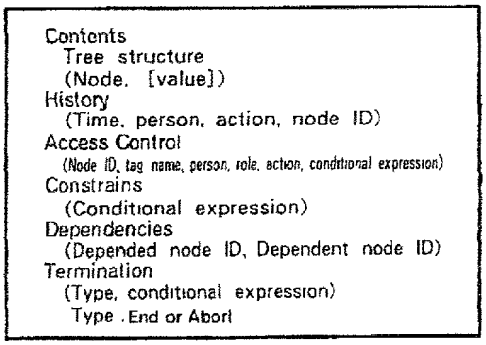
Structure of a flow control section

Fig. 4



Workflow including a bid from a forwarder

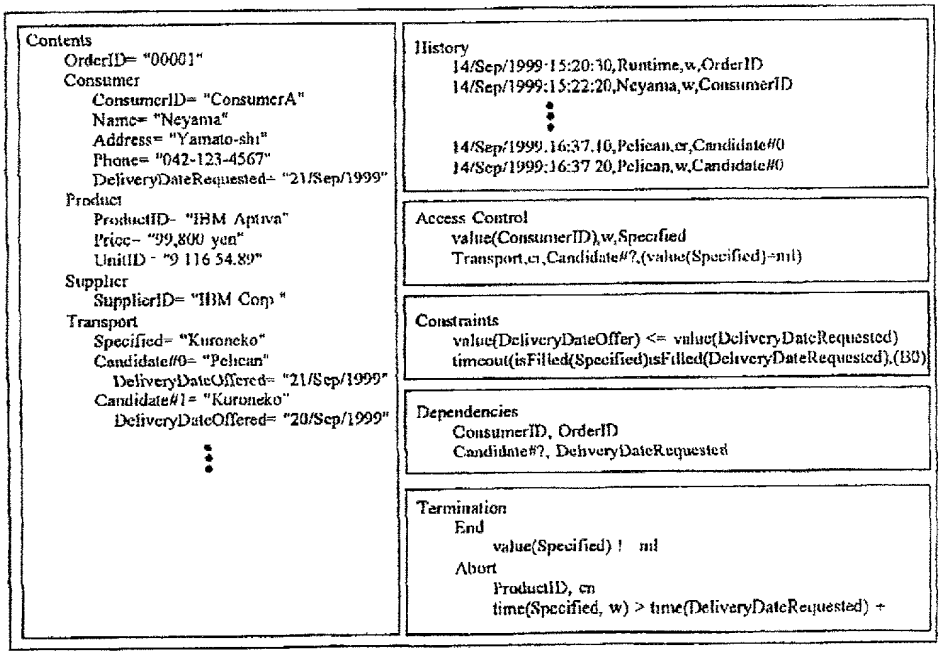
Fig. 5



[A] means that A is optional

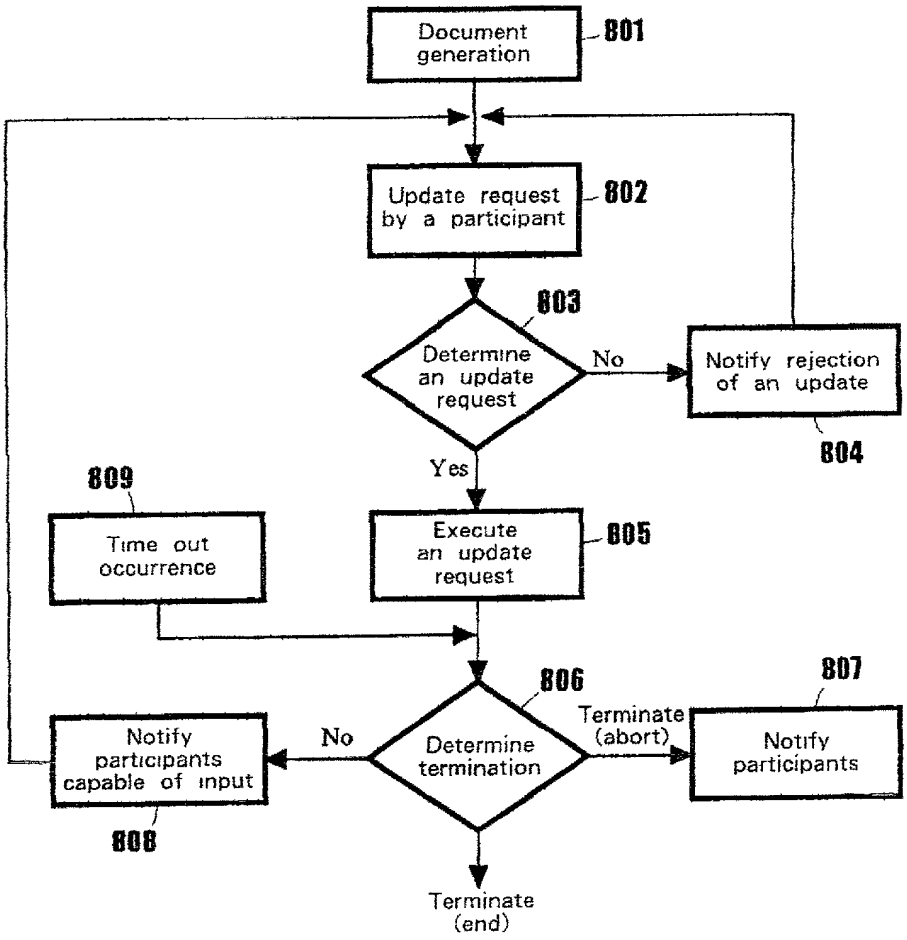
Document data structure

Fig. 6



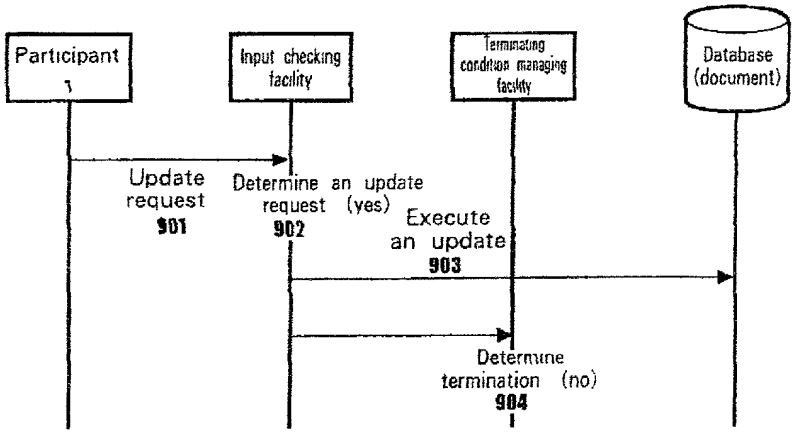
Example of a document

Fig. 7



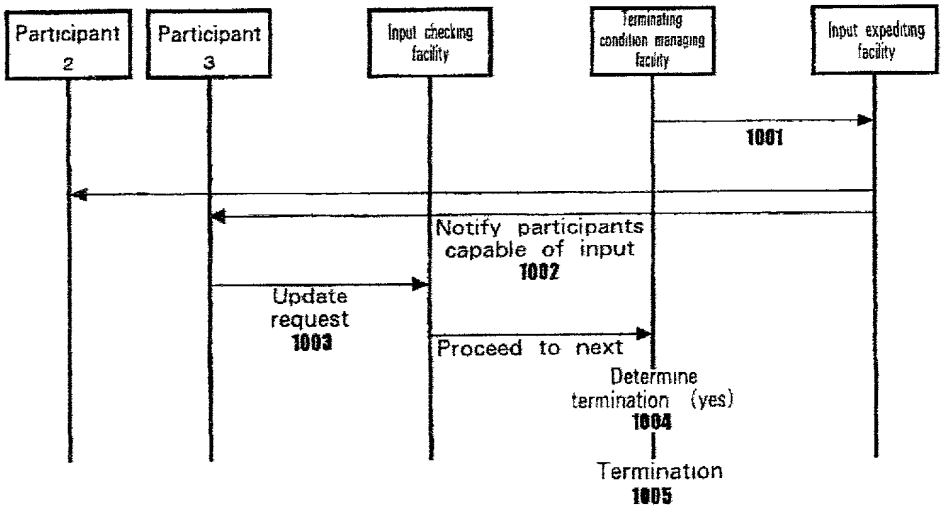
Operation of a flow control section

Fig. 8



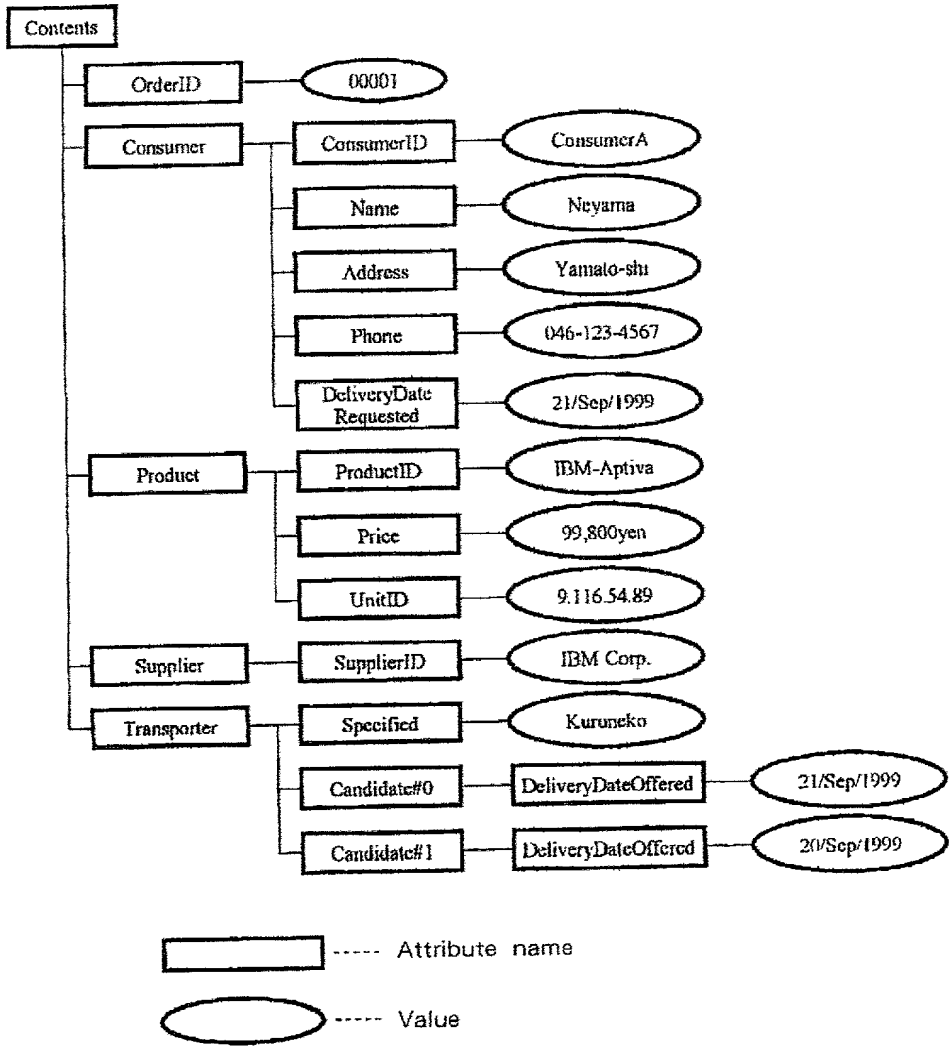
Processing flow among modules (1)

Fig. 9



Processing flow among modules (2)

Fig. 10



Structure of contents

Fig. 11

	Node ID (Attribute name)	Parent node ID (Attribute name)	Value
T0	/	nil	nil
T1	/document	/	nil
T2	/document/contents	/document	nil
T3	/document/contents/OrderID	/document/contents	00001
T4	/document/contents/Consumer	/document/contents	nil
T5	/document/contents/Consumer /ConsumerID	/document/contents /Consumer	Neyama
T6	/document/contents/Consumer /ConsumerID/Name	/document/contents /Consumer	Ryoh Neyama
T7	/document/contents/Consumer /ConsumerID/Address	/document/contents /Consumer	Yamato-shi
T8	/document/contents/Consumer /ConsumerID/Phone	/document/contents /Consumer	046-123-4567

Representation of a tree structure of contents as a table

Fig. 12

Order	Time (sec)	Writer ID	Action	Node ID
0	0	Runtime	Write	/document/contents/OrderID
1	100	Neyama	Write	/document/contents/Consumer /ConsumerID
2	100	Neyama	Write	/document/contents/Consumer /Name
3	100	Neyama	Write	/document/contents/Consumer /Address
4	100	Neyama	Write	/document/contents/Consumer /Phone

(Action types : Create, Write, Read, Cancel)

Example of History representation

Fig. 13

Outline part format

allow(<node>,<user>,<operation>)

Example of rules

Rule 1

allow(?Node, ?User, "+w") ←
isPath(?Node, "/document") and
hasRole(?User, "Consumer").

Rule 2

allow(?Node, ?User, "+w") ←
isPath(?Node, "/ProductID") and
hasRole(?User, "Consumer") and
isCreator(?User, ?Node).

Example of Access Control representation

Fig. 14

Constraints 1

Contents : member(TransportSpecified, CompanyID)

Internal representation :

getValue('TransportsSpecified',V1) and
getValueList('CompanyID',V2) and
member(V1, V2)

Constraints 2

Contents : DeliveryDateOffered <= DeliveryDateRequested

Internal representation :

getValue('DeliveryDateRequested',V1) and
getValue('DeliveryDateOffered',V2) and
V1 <= V2

Example of Constraints representation

Fig. 15

Depended node ID	Dependent node ID
ProductID	UnitID
UnitID	TransportInfo
TransportInfo	TransportSpecified

Example of Dependencies representation

Fig. 16

Example of an end

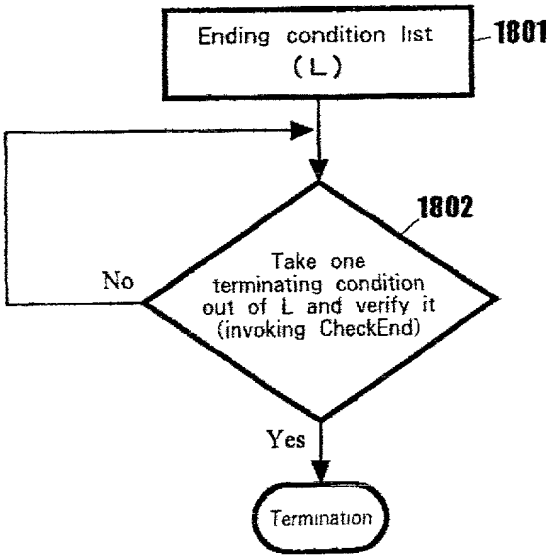
(1) isFilled('TransportSpecified').

Examples of an abort

(2) isCancelled('ProductID').
(3) timeout(
isSpecified('ProductID'),
isSpecified('TransportSpecified'),
180).

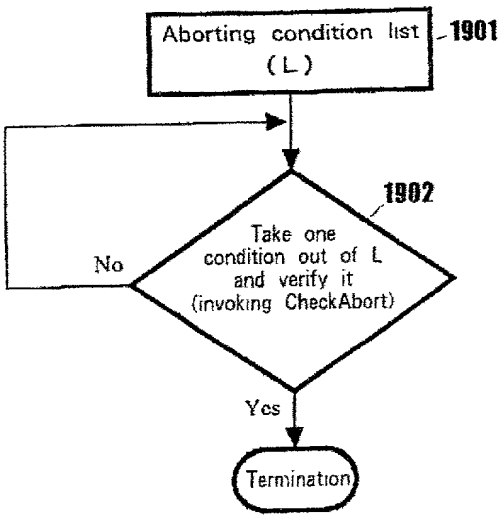
Example of Termination representation

Fig. 17



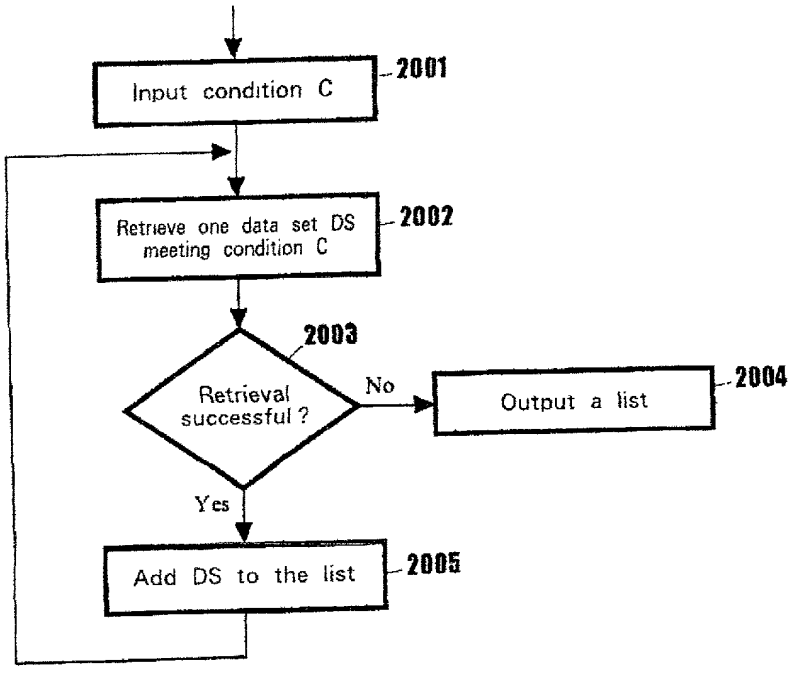
End determination

Fig. 18



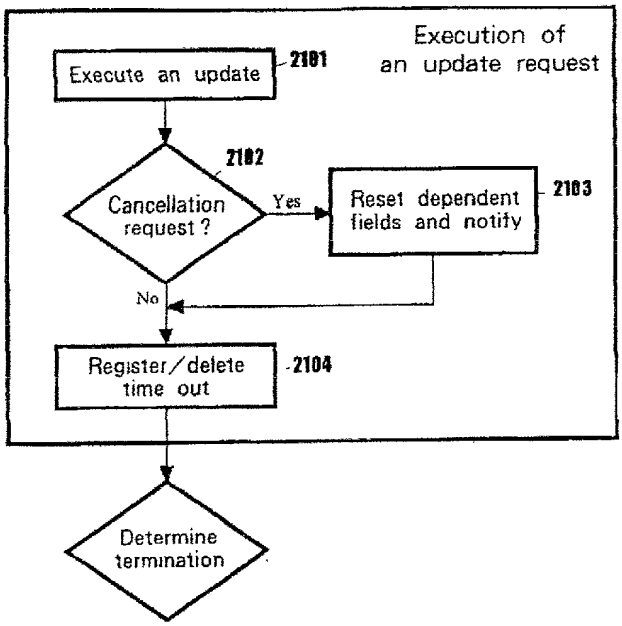
Abort determination

Fig. 19



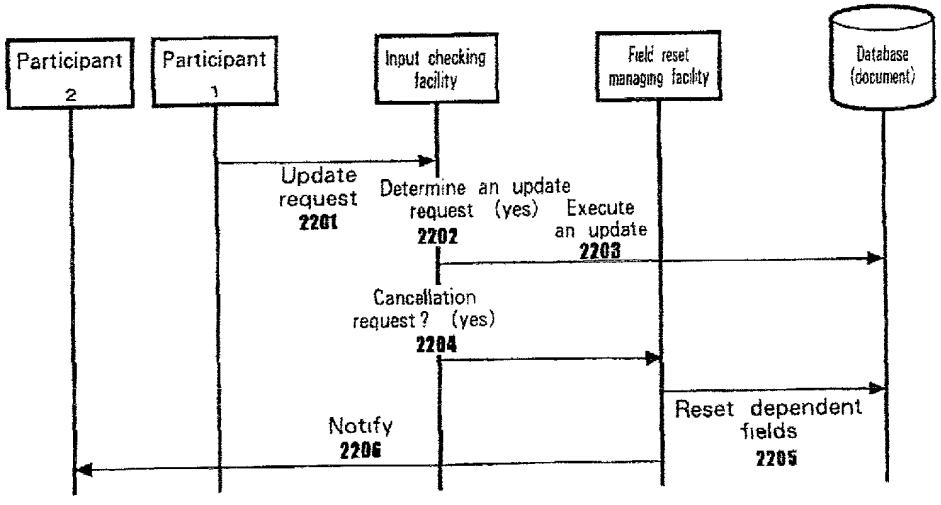
Processing for finding all elements

Fig. 20



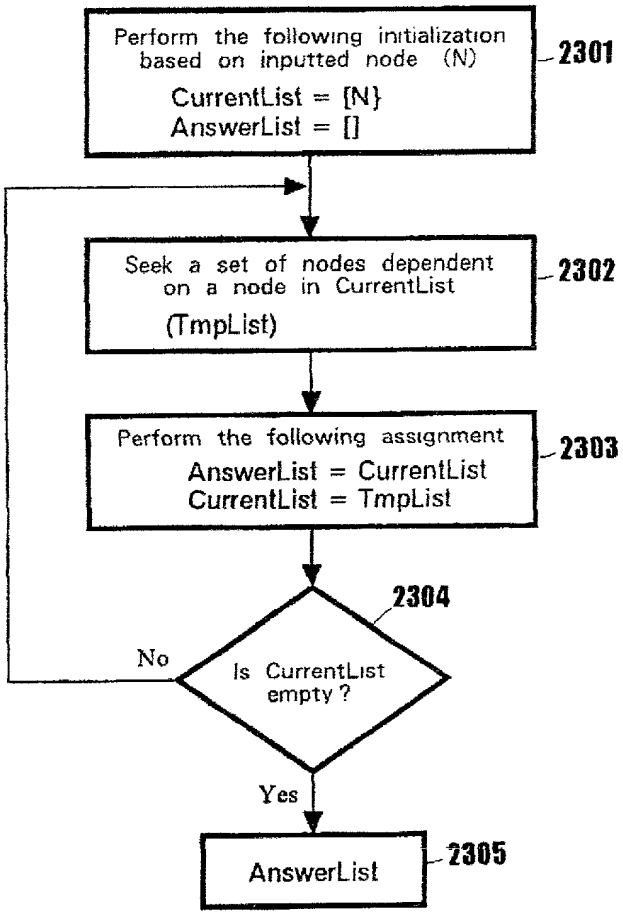
Details of execution of an update request

Fig. 21



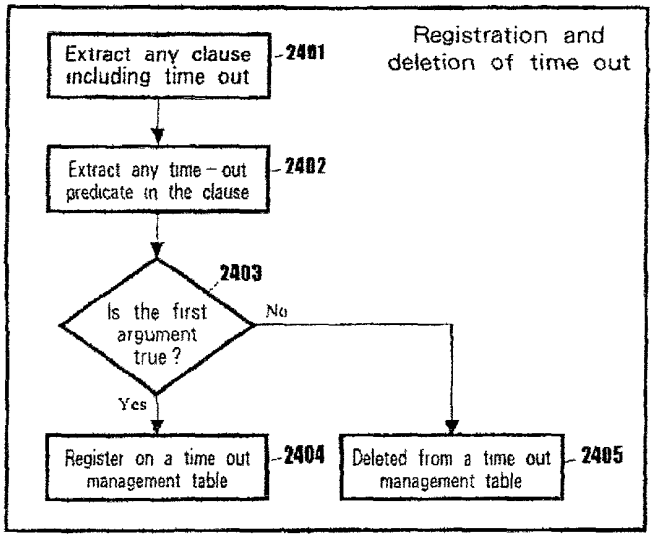
Details of update processing

Fig. 22



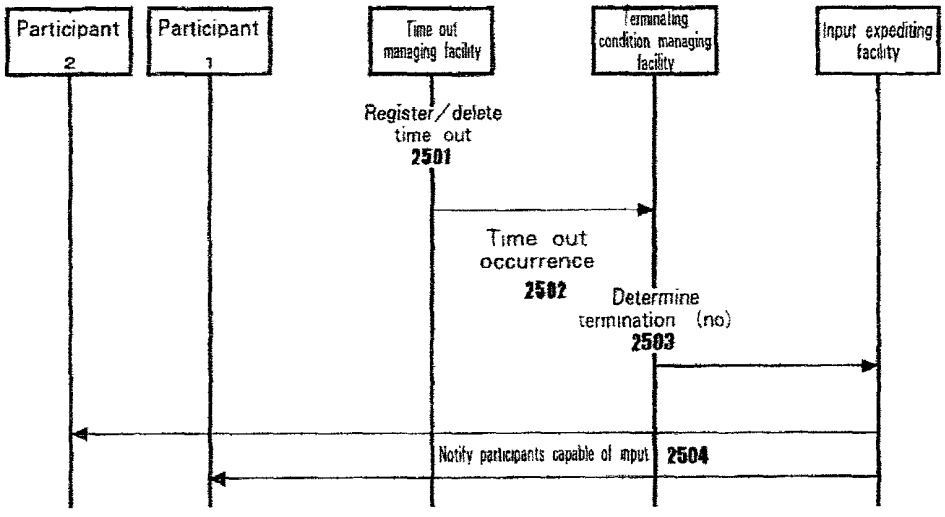
Processing for finding dependent nodes

Fig. 23



Details of registration and deletion of time out

Fig. 24



Processing after time out registration and occurrence

Fig. 25